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(FILE 'HOME' ENTERED AT 16:44:33 ON 07 OCT 2009)

FILE 'LREGISTRY' ENTERED AT 16:45:08 ON 07 OCT 2009
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FILE 'HCAPLUS' ENTERED AT 16:45:53 ON 07 OCT 2009
ACT HAI637B/A

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L1 (      538)SEA SPE=ON  ABB=ON  PLU=ON  PT (L) CR (L) NI/ELS
L2 (      313)SEA SPE=ON  ABB=ON  PLU=ON  L1 (L) 3-6/ELC.SUB
L3 (  1699944)SEA SPE=ON  ABB=ON  PLU=ON  CAT# OR CATAL?
L4      15 SEA SPE=ON  ABB=ON  PLU=ON  L2 AND L3
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D L4 9-12 HITSTR

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FILE HOME

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FILE HCAPLUS

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REVISED CLASS FIELDS (/NCL) LAST RELOADED: Aug 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Aug 2009

HCAPLUS now includes complete International Patent Classification (I) reclassification data for the third quarter of 2009.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 14 1-15 bib abs hitstr hitind

L4 ANSWER 1 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2009:275451 HCAPLUS Full-text
 DN 150:482525
 TI Effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C catalyst for methanol electro-oxidation
 AU Jeon, Min Ku; Zhang, Yuan; McGinn, Paul J.
 CS Department of Chemical and Biomolecular Engineering, University of Notre Dame, Notre Dame, IN, 46556, USA
 SO Electrochimica Acta (2009), 54(10), 2837-2842
 CODEN: ELCAAV; ISSN: 0013-4686
 PB Elsevier B.V.
 DT Journal
 LA English
 AB The effect of reduction conditions on a Pt28Ni36Cr36/C catalyst was studied by using two different reduction methods: H reduction and NaBH4 reduction. In H reduced catalysts, dissoln. of metallic Ni and Cr was observed during cyclic voltammetry (CV) tests, and a larger amount of Ni and Cr was dissolved when reduced at higher temps. For MeOH electrooxidn., the highest specific c.d. of 1.70 A m⁻² at 600 s of the chronoamperometry tests was observed in the catalyst reduced at 300°, which was .apprx.24 times that of a Pt/C catalyst (0.0685 A m⁻²). In NaBH4 reduced catalysts, formation of an amorphous phase and a more Pt-rich surface was observed in x-ray diffraction and CV results, resp., with increasing amts. of NaBH4. When reduced by 50 times of the stoichiometric amount of NaBH4, the PtNiCr/C catalyst (PtNiCr-50t) showed a c.d. of 34.1 A g noble metal⁻¹, which was 81% higher than the 18.8 A g noble metal⁻¹ value of a PtRu/C catalyst at 600 s of the chronoamperometry tests. After 13 h of chronoamperometry testing, the activity of the PtNiCr-50t (15.0 A g noble metal⁻¹) was 110% higher than the PtRu/C catalyst (7.15 A g noble metal⁻¹). The PtNiCr/C catalyst shows promise as a Ru-free MeOH oxidation catalyst.
 IT 1146619-29-5
 RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (effect of reduction conditions on electrocatalytic activity of a ternary PtNiCr/C catalyst for methanol electro-oxidation)
 RN 1146619-29-5 HCAPLUS
 CN Platinum alloy, base, Pt 58,Ni 22,Cr 20 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
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Pt	58	7440-06-4
Ni	22	7440-02-0
Cr	20	7440-47-3

CC 72-2 (Electrochemistry)
Section cross-reference(s): 22

ST redn condition electrocatalytic activity carbon catalyst
methanol electrooxidn; chromium nickel platinum alloy
catalyst electrooxidn

IT Oxidation, electrochemical
X-ray diffraction
(effect of reduction conditions on electrocatalytic activity of a
ternary PtNiCr/C catalyst for methanol electro-oxidation)

IT Oxidation catalysts
(electrochem.; effect of reduction conditions on electrocatalytic
activity of a ternary PtNiCr/C catalyst for methanol
electro-oxidation)

IT Reduction
(in catalyst preparation; effect of reduction conditions on
electrocatalytic activity of a ternary PtNiCr/C catalyst
for methanol electro-oxidation)

IT 1146619-29-5
RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or
engineered material use); USES (Uses)
(effect of reduction conditions on electrocatalytic activity of a
ternary PtNiCr/C catalyst for methanol electro-oxidation)

IT 7440-02-0, Nickel, formation (nonpreparative) 7440-47-3, Chromium,
formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(effect of reduction conditions on electrocatalytic activity of a
ternary PtNiCr/C catalyst for methanol electro-oxidation)

IT 67-56-1, Methanol, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant);
PROC (Process); RACT (Reactant or reagent)
(effect of reduction conditions on electrocatalytic activity of a
ternary PtNiCr/C catalyst for methanol electro-oxidation)

IT 1333-74-0, Hydrogen, reactions 16940-66-2, Sodium hydroborate
RL: RCT (Reactant); RACT (Reactant or reagent)
(effect of reduction conditions on electrocatalytic activity of a
ternary PtNiCr/C catalyst for methanol electro-oxidation)

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2
CITINGS)

RE.CNT 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2008:1173722 HCAPLUS Full-text
 DN 151:110338
 TI Combinatorial screening of ternary Pt-Ni-Cr **catalysts** for
 methanol electro-oxidation
 AU Cooper, James S.; Jeon, Min Ku; McGinn, Paul J.
 CS Department of Chemical and Biomolecular Engineering, University of
 Notre Dame, Notre Dame, IN, 46556, USA
 SO Electrochemistry Communications (2008), 10(10), 1545-1547
 CODEN: ECCMF9; ISSN: 1388-2481
 PB Elsevier B.V.
 DT Journal
 LA English
 AB Methanol electro-oxidation activity of ternary Pt-Ni-Cr system was
 studied by using a combinatorial screening method. A Pt-Ni-Cr thin-
 film library was prepared by sputtering and quickly characterized by
 a multichannel multielectrode analyzer. Among the 63 different
 composition thin-film **catalysts**, Pt₂₈Ni₃₆Cr₃₆ showed the highest
 methanol electro-oxidation activity and good stability. This new
 composition was also studied in its powder form by synthesizing and
 characterizing Pt₂₈Ni₃₆Cr₃₆/C **catalyst**. In chronoamperometry
 testing, the Pt₂₈Ni₃₆Cr₃₆/C **catalyst** exhibited "decay-free" behavior
 during 600 s operation by keeping its c.d. up to 97.1% of its peak
 c.d., while the current densities of Pt/C and Pt₅₀Ru₅₀/C **catalysts**
 decreased to 14.0% and 60.3% of their peak current densities, resp.
 At 600 s operation, c.d. of the Pt₂₈Ni₃₆Cr₃₆/C **catalyst** was 23.8 A
 g noble metal ⁻¹, while that of those of the Pt/C and Pt₅₀Ru₅₀/C
catalysts were 2.74 and 18.8 A g noble metal ⁻¹, resp.
 IT 177835-27-7
 RL: CAT (Catalyst use); USES (Uses)
 (combinatorial screening of ternary Pt-Ni-Cr **catalysts**
 for methanol electro-oxidation in)
 RN 177835-27-7 HCAPLUS
 CN Platinum alloy, base, Pt,Cr,Ni (CA INDEX NAME)

Component Component
 Registry Number

=====+=====

Pt	7440-06-4
Cr	7440-47-3
Ni	7440-02-0

IT 1146619-29-5
 RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP
 (Physical, engineering or chemical process); FORM (Formation,

nonpreparative); PROC (Process); USES (Uses)
 (deposition of ternary Pt-Ni-Cr **catalysts** for methanol
 electro-oxidation on carbon support in solution containing)

RN 1146619-29-5 HCAPLUS

CN Platinum alloy, base, Pt 58,Ni 22,Cr 20 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Pt	58	7440-06-4
Ni	22	7440-02-0
Cr	20	7440-47-3

CC 72-2 (Electrochemistry)

Section cross-reference(s): 23, 52, 56, 67, 78

IT X-ray diffraction

(by Pt, Pt-Ru and ternary Pt-Ni-Cr **catalysts** deposited
 on carbon support)

IT Oxidation, electrochemical

(combinatorial screening of ternary Pt-Ni-Cr **catalysts**
 for methanol electro-oxidation)

IT Fuel cells

(combinatorial screening of ternary Pt-Ni-Cr **catalysts**
 for methanol electro-oxidation in)

IT **Catalysts**

(electrocatalysts; combinatorial screening of ternary Pt-Ni-Cr
catalysts for methanol electro-oxidation)

IT Coating process

(electroless; of ternary Pt-Ni-Cr **catalysts** for
 methanol electro-oxidation on carbon support)

IT Chronoamperometry

Current density

(of methanol oxidation on Pt, Pt-Ru and ternary Pt-Ni-Cr
catalysts deposited on carbon support in sulfuric acid
 soln)

IT Sputtering

(preparation of ternary Pt-Ni-Cr **catalysts** for methanol
 electro-oxidation by)

IT Multilayers

(preparation of ternary Pt-Ni-Cr **catalysts** for methanol
 electro-oxidation by sputtering)

IT Combinatorial chemistry

(solid-phase; combinatorial screening of ternary Pt-Ni-Cr
catalysts for methanol electro-oxidation)

IT 67-56-1, Methanol, reactions

RL: PEP (Physical, engineering or chemical process); RCT (Reactant);
 PROC (Process); RACT (Reactant or reagent)

(combinatorial screening of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation)

IT 177835-27-7
 RL: CAT (Catalyst use); USES (Uses)
 (combinatorial screening of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation in)

IT 7440-06-4, Platinum, uses 12714-36-2, Platinum 50, ruthenium 50(atomic)
 RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
 (deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support)

IT 7440-44-0, Carbon, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support)

IT 1146619-29-5
 RL: CAT (Catalyst use); FMU (Formation, unclassified); PEP (Physical, engineering or chemical process); FORM (Formation, nonpreparative); PROC (Process); USES (Uses)
 (deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support in solution containing)

IT 7718-54-9, Nickel dichloride, reactions 13548-38-4, Chromium nitrate 16940-66-2, Sodium tetrahydroborate 16941-12-1, Hexachloroplatinic acid
 RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
 (deposition of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation on carbon support in solution containing)

IT 7664-93-9, Sulfuric acid, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (electrooxidn. of methanol oxidation on Pt, Pt-Ru and ternary Pt-Ni-Cr catalysts deposited on carbon support in sulfuric acid soln)

IT 7440-21-3, Silicon, uses
 RL: TEM (Technical or engineered material use); USES (Uses)
 (preparation of ternary Pt-Ni-Cr catalysts for methanol electro-oxidation by sputtering on)

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2007:1243429 HCAPLUS Full-text
 DN 147:505407

TI Catalyst, membrane electrode assembly and fuel cell
 IN Mei, Wu; Fukazawa, Taishi; Sato, Takahiro; Mizutani, Itsuko;
 Kobayashi, Tsuyoshi; Nakano, Yoshihiko
 PA Japan
 SO U.S. Pat. Appl. Publ., 17 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	US 20070254806	A1	20071101	US 2007-737393	20070419
	JP 2007317641	A	20071206	JP 2007-57450	20070307
	CN 101064368	A	20071031	CN 2007-10104770	20070426
	KR 2007106457	A	20071101	KR 2007-41472	20070427
	KR 873536	B1	20081211		
PRAI	JP 2006-126854	A	20060428		
	JP 2007-57450	A	20070307		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A catalyst includes a conductive carrier and catalyst particles. The catalyst particles are supported on the conductive carrier and have a composition represented by the formula: $Pt_xRu_yTz_z$, where the T-element is at least one element selected from the group consisting of V, Nb and Hf, x is 30 to 60 atomic%, y is 20 to 50 atomic% and z is 5 to 50 atomic%. An area of a peak derived from a metal bond of a T-element is 15% or more of an area of a peak derived from an oxygen bond of the T-element in a spectrum obtained by X-ray photoelectron spectroscopic method.

IT 955120-11-3P 955120-26-0P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
 (catalyst, membrane electrode assembly and fuel cell)

RN 955120-11-3 HCAPLUS

CN Platinum alloy, base, Pt 65,Ru 23,Ni 6.8,V 3.2,Cr 1.6 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
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=====+=====+=====
Pt          65          7440-06-4
Ru          23          7440-18-8
Ni          6.8        7440-02-0
V           3.2        7440-62-2
Cr          1.6        7440-47-3

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RN 955120-26-0 HCAPLUS

CN Platinum alloy, base, Pt 61,Ru 17,Ni 14,W 7.1,Cr 1.2 (CA INDEX NAME)

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Component      Component      Component
                Percent       Registry Number
=====+=====+=====
Pt             61             7440-06-4
Ru             17             7440-18-8
Ni             14             7440-02-0
W              7.1            7440-33-7
Cr             1.2            7440-47-3

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INCL 502325000; 429044000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67

ST fuel cell **catalyst** membrane electrode assembly

IT Fuel cells

Membrane electrodes

Sputtering

(**catalyst**, membrane electrode assembly and fuel cell)

IT Carbon black

RL: CAT (Catalyst use); USES (Uses)

(**catalyst**, membrane electrode assembly and fuel cell)

IT **Catalysts**

(electrocatalysts; **catalyst**, membrane electrode assembly and fuel cell)

IT Polyoxyalkylenes

RL: TEM (Technical or engineered material use); USES (Uses)

(fluorine- and sulfo-containing, ionomers; **catalyst**, membrane electrode assembly and fuel cell)

IT Fluoropolymers

RL: TEM (Technical or engineered material use); USES (Uses)

(polyoxyalkylene-, sulfo-containing, ionomers; **catalyst**, membrane electrode assembly and fuel cell)

IT Ionomers

RL: TEM (Technical or engineered material use); USES (Uses)

(polyoxyalkylenes, fluorine- and sulfo-containing; **catalyst**, membrane electrode assembly and fuel cell)

IT 955119-82-1P 955119-84-3P 955119-86-5P 955119-87-6P

955119-89-8P	955119-91-2P	955119-92-3P	955119-93-4P
955119-94-5P	955119-95-6P	955119-96-7P	955119-97-8P
955119-98-9P	955119-99-0P	955120-00-0P	955120-01-1P
955120-02-2P	955120-03-3P	955120-04-4P	955120-05-5P
955120-06-6P	955120-07-7P	955120-08-8P	955120-09-9P
955120-10-2P	955120-11-3P	955120-12-4P	955120-13-5P
955120-14-6P	955120-15-7P	955120-16-8P	955120-17-9P
955120-18-0P	955120-19-1P	955120-20-4P	955120-21-5P
955120-22-6P	955120-23-7P	955120-24-8P	955120-25-9P
955120-26-0P	955120-27-1P	955120-28-2P	955120-29-3P
955120-30-6P	955120-31-7P	955120-32-8P	955120-33-9P
955120-34-0P	955120-35-1P	955120-36-2P	955120-37-3P
955120-38-4P	955120-39-5P		

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

IT 67-56-1, Methanol, uses 66796-30-3, Nafion 117
 RL: TEM (Technical or engineered material use); USES (Uses)
 (catalyst, membrane electrode assembly and fuel cell)

L4 ANSWER 4 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2006:1235451 HCAPLUS Full-text

DN 146:187385

TI Performance and stability of Pt-based ternary alloy catalysts for PEMFC

AU Seo, Aereee; Lee, Jaeseung; Han, Kookil; Kim, Hasuck

CS Department of Chemistry, Seoul National University, Seoul, 151-747, S. Korea

SO Electrochimica Acta (2006), 52(4), 1603-1611

CODEN: ELCAAV; ISSN: 0013-4686

PB Elsevier B.V.

DT Journal

LA English

AB C-supported Pt-based ternary alloy electrocatalysts were prepared by incipient wetness method to study the enhanced activity of O reduction in PEMFCs. To measure the catalytic activity and stability of the cathode alloy catalysts (electrodes containing Pt loading of 0.3 mg/cm², 20% Pt/C, E-TEK), I-V polarization curves were obtained. All alloy catalysts showed higher performances than Pt/C. Pt formed alloys with transition metals - the electronic state of Pt and the nearest neighbor Pt-Pt distance changes and this influences the electrocatalytic activity for O reduction. Long-term stability was tested for the Pt₆CoCr₁/C alloy catalyst for 500 h. According to XPS, the lower oxide component with Pt₆CoCr₁/C electrocatalyst provides a large portion of Pt in metallic species in the electrocatalyst and it seems to be mainly responsible for its enhanced activity towards O reduction.

IT 921611-57-6
 RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 RN 921611-57-6 HCAPLUS
 CN Platinum alloy, base, Pt 92,Ni 4.5,Cr 3.8 (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	92	7440-06-4
Ni	4.5	7440-02-0
Cr	3.8	7440-47-3

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 56, 67
 ST platinum ternary alloy cathode catalyst fuel cell
 IT Reduction catalysts
 (electrochem.; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 IT Fuel cell cathodes
 (performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 IT Fuel cells
 (proton exchange membrane; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 IT Alloys, uses
 RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (ternary; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 IT 7440-44-0, Carbon, uses
 RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)
 (catalyst support; performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 IT 921611-55-4 921611-56-5 921611-57-6 921611-58-7
 921611-59-8 921611-60-1 921611-61-2
 RL: CAT (Catalyst use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
 (performance and stability of Pt-based ternary alloy catalysts for PEMFCs)
 OSC.G 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)
 RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 5 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 2005:1155369 HCAPLUS Full-text
 DN 143:424682
 TI Membrane-electrode assembly and fuel cell system
 IN Cho, Kyu-Woong
 PA S. Korea
 SO U.S. Pat. Appl. Publ., 11 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO. -----	KIND ----	DATE -----	APPLICATION NO. -----	DATE
PI	US 20050238936	A1	20051027	US 2005-114103	200504 26
	KR 2005103648	A	20051101	KR 2004-28909	200404 27
	CN 1694288	A	20051109	CN 2005-10079254	200504 27
	CN 100352089	C	20071128		
	JP 2005317546	A	20051110	JP 2005-130506	200504 27
PRAI	KR 2004-28909	A	20040427		

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A membrane-electrode assembly is described for a fuel cell and fuel cell system. The membrane-electrode assembly includes a **catalyst** layer formed on both sides of a polymer electrolyte membrane, a platinum-metal alloy **catalyst** included in the **catalyst** layer, where the alloy **catalyst** shows a diffraction peak in a 110 plane at a degree 20=30-35 in the measurement of X-ray (CuK α) diffraction. The alloy **catalyst** has an excellent stability due to the compact crystal lattice structure of the **catalyst**, and it incurs low production costs and has sensitive reactivity.

IT 123553-84-4

RL: CAT (Catalyst use); USES (Uses)
 (membrane electrode assembly and fuel cell system)

RN 123553-84-4 HCAPLUS

CN Platinum alloy, base, Pt 78,Ni 12,Cr 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
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=====+=====+=====
Pt      78      7440-06-4
Ni      12      7440-02-0
Cr      10      7440-47-3

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IC   ICM  H01M004-92
     ICS  H01M008-10; B01J021-18
INCL 429030000; 429040000; 502185000
CC   52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
     Section cross-reference(s): 55, 56, 67
IT   1344-28-1, Alumina, uses 7439-89-6, Iron, uses 7440-02-0,
     Nickel, uses 7440-06-4, Platinum, uses 7440-44-0, Carbon, uses
     7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7631-86-9,
     Silica, uses 11105-45-6 37256-04-5, Nickel 50, platinum 50
     (atomic) 37274-26-3, Iron 50, platinum 50 (atomic) 39305-53-8,
     Cobalt 50, platinum 50 (atomic) 77506-59-3, Chromium 50, platinum
     50 (atomic) 123553-84-4
RL:  CAT (Catalyst use); USES (Uses)
     (membrane electrode assembly and fuel cell system)

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L4   ANSWER 6 OF 15  HCAPLUS  COPYRIGHT 2009 ACS on STN
AN   2005:16051  HCAPLUS  Full-text
DN   142:117646
TI   Platinum-chromium-copper/nickel fuel cell catalyst
IN   Chondroudis, Konstantinos; Gorer, Alexander; Devenney, Martin; He,
     Ting; Oyanagi, Hiroyuki; Giaquinta, Daniel M.; Urata, Kenta; Fukuda,
     Hiroichi; Fan, Qun; Strasser, Peter
PA   Symyx Technologies, Inc., USA; Honda Giken Kogyo Kabushiki Kaisha
SO   PCT Int. Appl., 70 pp.
     CODEN: PIXXD2      Instant application
DT   Patent      10/559,637
LA   English
FAN.CNT 1

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	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2005001967	A1	20050106	WO 2004-US17333	

200406
03

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW,

AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ,
 DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL,
 PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
 GW, ML, MR, NE, SN, TD, TG

US 20060251952

A1

20061109

US 2005-559637

200512
 02

PRAI US 2003-475559P P 20030603

WO 2004-US17333 W 20040603

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A fuel cell catalyst comprising platinum, chromium, and copper,
 nickel or a combination thereof is disclosed. In one or more
 embodiments, the concentration of platinum is less than 50 atomic%,
 and/or the concentration of chromium is less than 30 atomic%, and/or
 the concentration of copper, nickel, or a combination thereof is at
 least 35 atomic%.

IT 821770-72-3P 821770-74-5P
 821770-75-6P 821770-76-7P 821770-97-2P
 821770-98-3P 821770-99-4P 821771-00-0P
 821771-01-1P 821771-02-2P 821771-03-3P
 821771-04-4P 821771-05-5P 821771-06-6P
 821771-07-7P 821771-08-8P 821771-09-9P
 821771-10-2P 821771-11-3P 821771-12-4P
 821771-13-5P 821771-14-6P 821771-15-7P
 821771-16-8P 821771-17-9P 821771-19-1P
 821771-20-4P 821771-21-5P 821771-22-6P
 821771-23-7P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP
 (Preparation); USES (Uses)
 (platinum-chromium-copper/nickel fuel cell catalyst)

RN 821770-72-3 HCAPLUS

CN Platinum alloy, base, Pt 46, Ni 42, Cr 12 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	46	7440-06-4
Ni	42	7440-02-0
Cr	12	7440-47-3

RN 821770-74-5 HCAPLUS

CN Platinum alloy, base, Pt 48, Cu 31, Cr 13, Ni 7.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	48	7440-06-4
Cu	31	7440-05-1
Cr	13	7440-47-3
Ni	7.3	7440-02-0

Pt	48	7440-06-4
Cu	31	7440-50-8
Cr	13	7440-47-3
Ni	7.3	7440-02-0

RN 821770-75-6 HCAPLUS

CN Platinum alloy, base, Pt 49,Cu 24,Ni 15,Cr 13 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	49	7440-06-4
Cu	24	7440-50-8
Ni	15	7440-02-0
Cr	13	7440-47-3

RN 821770-76-7 HCAPLUS

CN Platinum alloy, base, Pt 70,Ni 21,Cr 9.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	70	7440-06-4
Ni	21	7440-02-0
Cr	9.3	7440-47-3

RN 821770-97-2 HCAPLUS

CN Nickel alloy, base, Ni 48,Pt 46,Cr 6.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Ni	48	7440-02-0
Pt	46	7440-06-4
Cr	6.1	7440-47-3

RN 821770-98-3 HCAPLUS

CN Platinum alloy, base, Pt 59,Ni 36,Cr 5.3 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	59	7440-06-4
Ni	36	7440-02-0
Cr	5.3	7440-47-3

RN 821770-99-4 HCAPLUS

CN Platinum alloy, base, Pt 60,Ni 30,Cr 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Ni	30	7440-02-0
Cr	11	7440-47-3

RN 821771-00-0 HCAPLUS

CN Platinum alloy, base, Pt 46,Ni 35,Cr 19 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	46	7440-06-4
Ni	35	7440-02-0
Cr	19	7440-47-3

RN 821771-01-1 HCAPLUS

CN Platinum alloy, base, Pt 60,Ni 24,Cr 16 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Ni	24	7440-02-0
Cr	16	7440-47-3

RN 821771-02-2 HCAPLUS

CN Platinum alloy, base, Pt 69,Ni 26,Cr 4.6 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	69	7440-06-4
Ni	26	7440-02-0
Cr	4.6	7440-47-3

RN 821771-03-3 HCAPLUS

CN Platinum alloy, base, Pt 77,Ni 19,Cr 4.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	77	7440-06-4
Ni	19	7440-02-0

Cr 4.1 7440-47-3

RN 821771-04-4 HCAPLUS

CN Platinum alloy, base, Pt 85,Cr 11,Ni 4.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	85	7440-06-4
Cr	11	7440-47-3
Ni	4.2	7440-02-0

RN 821771-05-5 HCAPLUS

CN Platinum alloy, base, Pt 71,Cr 19,Ni 11 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	71	7440-06-4
Cr	19	7440-47-3
Ni	11	7440-02-0

RN 821771-06-6 HCAPLUS

CN Platinum alloy, base, Pt 70,Ni 16,Cr 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	70	7440-06-4
Ni	16	7440-02-0
Cr	14	7440-47-3

RN 821771-07-7 HCAPLUS

CN Platinum alloy, base, Pt 60,Cr 21,Ni 18 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	60	7440-06-4
Cr	21	7440-47-3
Ni	18	7440-02-0

RN 821771-08-8 HCAPLUS

CN Platinum alloy, base, Pt 89,Ni 7.6,Cr 3.4 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
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=====+=====+=====
Pt          89          7440-06-4
Ni          7.6         7440-02-0
Cr          3.4         7440-47-3

```

RN 821771-09-9 HCAPLUS

CN Platinum alloy, base, Pt 78,Ni 14,Cr 8.3 (9CI) (CA INDEX NAME)

```

Component      Component      Component
                Percent      Registry Number
=====+=====+=====
Pt          78          7440-06-4
Ni          14          7440-02-0
Cr          8.3         7440-47-3

```

RN 821771-10-2 HCAPLUS

CN Platinum alloy, base, Pt 78,Cr 12,Ni 9.4 (9CI) (CA INDEX NAME)

```

Component      Component      Component
                Percent      Registry Number
=====+=====+=====
Pt          78          7440-06-4
Cr          12          7440-47-3
Ni          9.4         7440-02-0

```

RN 821771-11-3 HCAPLUS

CN Platinum alloy, base, Pt 71,Cr 24,Ni 5.3 (9CI) (CA INDEX NAME)

```

Component      Component      Component
                Percent      Registry Number
=====+=====+=====
Pt          71          7440-06-4
Cr          24          7440-47-3
Ni          5.3         7440-02-0

```

RN 821771-12-4 HCAPLUS

CN Platinum alloy, base, Pt 93,Ni 3.5,Cr 3.1 (9CI) (CA INDEX NAME)

```

Component      Component      Component
                Percent      Registry Number
=====+=====+=====
Pt          93          7440-06-4
Ni          3.5         7440-02-0
Cr          3.1         7440-47-3

```

RN 821771-13-5 HCAPLUS

CN Platinum alloy, base, Pt 61,Cr 27,Ni 12 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	61	7440-06-4
Cr	27	7440-47-3
Ni	12	7440-02-0

RN 821771-14-6 HCAPLUS

CN Platinum alloy, base, Pt 84,Ni 13,Cr 3.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	84	7440-06-4
Ni	13	7440-02-0
Cr	3.7	7440-47-3

RN 821771-15-7 HCAPLUS

CN Platinum alloy, base, Pt 89,Cr 6.8,Ni 3.8 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	89	7440-06-4
Cr	6.8	7440-47-3
Ni	3.8	7440-02-0

RN 821771-16-8 HCAPLUS

CN Platinum alloy, base, Pt 47,Cr 31,Ni 21 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	47	7440-06-4
Cr	31	7440-47-3
Ni	21	7440-02-0

RN 821771-17-9 HCAPLUS

CN Platinum alloy, base, Pt 79,Cr 17,Ni 4.7 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	79	7440-06-4
Cr	17	7440-47-3
Ni	4.7	7440-02-0

RN 821771-19-1 HCAPLUS
 CN Platinum alloy, base, Pt 84,Ni 8.4,Cr 7.5 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	84	7440-06-4
Ni	8.4	7440-02-0
Cr	7.5	7440-47-3

RN 821771-20-4 HCAPLUS
 CN Platinum alloy, base, Pt 61,Cr 33,Ni 6.1 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	61	7440-06-4
Cr	33	7440-47-3
Ni	6.1	7440-02-0

RN 821771-21-5 HCAPLUS
 CN Platinum alloy, base, Pt 48,Cr 45,Ni 7.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	48	7440-06-4
Cr	45	7440-47-3
Ni	7.2	7440-02-0

RN 821771-22-6 HCAPLUS
 CN Platinum alloy, base, Pt 47,Ni 28,Cr 25 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	47	7440-06-4
Ni	28	7440-02-0
Cr	25	7440-47-3

RN 821771-23-7 HCAPLUS
 CN Platinum alloy, base, Pt 48,Cr 38,Ni 14 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	48	7440-06-4
Cr	38	7440-47-3
Ni	14	7440-02-0

Pt	48	7440-06-4
Cr	38	7440-47-3
Ni	14	7440-02-0

IC	ICM	H01M004-92
	ICS	H01M004-96; B01J023-26; B01J023-42; B01J023-72; B01J023-755; B01J023-86; B01J023-89; H01M008-10
CC	52-2	(Electrochemical, Radiational, and Thermal Energy Technology) Section cross-reference(s): 56, 67
ST	platinum chromium copper nickel fuel cell catalyst	
IT	Catalysts	(electrocatalysts; platinum-chromium-copper/nickel fuel cell catalyst)
IT	Fuels	(fossil; platinum-chromium-copper/nickel fuel cell catalyst)
IT	Municipal refuse	(off-gas; platinum-chromium-copper/nickel fuel cell catalyst)
IT	Hydrocarbons, uses	RL: TEM (Technical or engineered material use); USES (Uses) (oxy; platinum-chromium-copper/nickel fuel cell catalyst)
IT	Fuel cell electrodes	Photolithography (platinum-chromium-copper/nickel fuel cell catalyst)
IT	Hydrocarbons, uses	RL: TEM (Technical or engineered material use); USES (Uses) (platinum-chromium-copper/nickel fuel cell catalyst)
IT	Fuel cells	(proton exchange membrane; platinum-chromium-copper/nickel fuel cell catalyst)
IT	Magnetron sputtering	(radio-frequency; platinum-chromium-copper/nickel fuel cell catalyst)
IT	7440-06-4, Platinum, uses	RL: CAT (Catalyst use); USES (Uses) (platinum-chromium-copper/nickel fuel cell catalyst)
IT	821770-72-3P	821770-73-4P 821770-74-5P
	821770-75-6P	821770-76-7P 821770-77-8P
	821770-78-9P	821770-79-0P 821770-80-3P 821770-81-4P
	821770-82-5P	821770-83-6P 821770-84-7P 821770-85-8P
	821770-86-9P	821770-87-0P 821770-88-1P 821770-89-2P
	821770-90-5P	821770-91-6P 821770-92-7P 821770-93-8P
	821770-94-9P	821770-95-0P 821770-96-1P 821770-97-2P
	821770-98-3P	821770-99-4P 821771-00-0P
	821771-01-1P	821771-02-2P 821771-03-3P

821771-04-4P 821771-05-5P 821771-06-6P
 821771-07-7P 821771-08-8P 821771-09-9P
 821771-10-2P 821771-11-3P 821771-12-4P
 821771-13-5P 821771-14-6P 821771-15-7P
 821771-16-8P 821771-17-9P 821771-18-0P
 821771-19-1P 821771-20-4P 821771-21-5P
 821771-22-6P 821771-23-7P 821771-24-8P
 821771-25-9P 821771-27-1P 821771-28-2P 821771-29-3P
 821771-30-6P 821771-31-7P 821771-32-8P 821771-33-9P
 821771-34-0P 821771-35-1P 821771-36-2P 821771-37-3P
 821771-38-4P 821771-39-5P 821771-40-8P 821771-41-9P
 821771-42-0P 821771-43-1P 821771-44-2P 821771-45-3P
 821771-46-4P 821771-47-5P 821771-48-6P 821771-49-7P
 821771-50-0P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(platinum-chromium-copper/nickel fuel cell catalyst)

IT 7782-44-7, Oxygen, processes

RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

(platinum-chromium-copper/nickel fuel cell catalyst)

IT 67-56-1, Methanol, uses 1333-74-0, Hydrogen, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(platinum-chromium-copper/nickel fuel cell catalyst)

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 7 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2003:582740 HCAPLUS Full-text

DN 139:137073

TI Production of porous structure containing functional compound fine particles dispersed in overall position

IN Yamauchi, Goro; Nakajima, Hideo; Taira, Hirohito; Mabuchi, Mamoru
 PA Japan Science and Technology Corporation, Japan; National Institute of Advanced Industrial Science and Technology

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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PI	JP 2003213352	A	20030730	JP 2002-17453	

200201

JP 4328052 B2 20090909
 PRAI JP 2002-17453 20020125
 AB The title porous structure is composed of a matrix made of an element Y, and dispersed fine particles made of a X-Z compound (X = element showing gaseous phase at an ordinary temperature, Z = element showing high affinity with X). The porous structure is produced by heating a porous material (porosity 0.1-95.0%) made of Y containing 0.00001-70 atomic% of Z in an atmospheric containing X with partial pressure capable of forming the X-Z compound but insufficient for forming a Y-X compound, to precipitate the X-Z compound in the form of grains or plate-like in overall position of the porous material. 00 X
 Si, Mn, P, Al, Zn, Ti, Ni, Cr, Co, Fe, Be, Mg, Cd, In, Zr, Sn, Ce, Ca, Ga, B, Sb, Tl, Pb, Nb, Ta, Bi, Li, Mo, W, V, Pb. Hf 1 2 Z Z
 Ag, Cu, Ni, Fe, Pd, Co, Au, Pt, Cr, Mo, W, Ti, Zr, Hf, V, Nb, Ta, Ge, Sn, Pb 1 2 Y. NN
 X Ti, Zr, Al, Fe, Cr, Mo, V, Si 1 2 Z Z Ag, Cu, Ni, Fe, Pd, Co, Au, Pt, Cr, Mo, W 1 2 Y. FF X Be, Mg, Ca, Al, Ti, Si, Cr 1 2 Z Z
 Ag, Cu, Ni, Fe, Pd, Co, Au, Pt, Cr, Mo, W, Ti, Zr 1 2 Y. HH X
 La, Ca, Li, Ti, K, Na, U, Mg, Ni, Co, V, Fe, Mn, Ce, Al, Y, Zr 1 2 Z Z
 Ag, Cu, Ni, Fe, Pd, Co, Au, Pt, Cr, Mo, W, Ti, Zr, Mg 1 2 Y. Thus, a porous Ni-Ti alloy embedded in powder mixture of Ni oxide, Ni, and Al₂O₃, and heated in Ar to give a porous structure containing anatase-type photocatalytic TiO₂ particles and rutile-type TiO₂ particles.
 IT 566144-25-0
 RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
 (starting material; in production of porous structure containing functional compound fine particles dispersed in overall position)
 RN 566144-25-0 HCAPLUS
 CN Iron alloy, base, Fe 44, Pt 39, Cr 9.9, Ni 4.9, Ti 3.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Fe	44	7439-89-6
Pt	39	7440-06-4
Cr	9.9	7440-47-3
Ni	4.9	7440-02-0
Ti	3.2	7440-32-6

IC ICM C22C001-08
 ICS C22C032-00
 CC 56-4 (Nonferrous Metals and Alloys)
 Section cross-reference(s): 52, 59, 74
 ST porous material dispersion functional fine particle; oxide particle dispersion porous material prepn; nitride particle dispersion porous

material prepn; fluoride particle dispersion porous material prepn;
 hydride particle dispersion porous material prepn; photocatalyst
 particle dispersion porous material prepn; compd catalyst
 particle dispersion porous material prepn; hydrogen absorbing
 particle dispersion porous material prepn

IT Catalysts

(comps., functional particles; production of porous structure
 containing functional compound fine particles dispersed in overall position)

IT Catalysts

(photochem., comps., functional particles; production of porous
 structure containing functional compound fine particles dispersed

in

overall position)

IT 566144-25-0

RL: CPS (Chemical process); PEP (Physical, engineering or chemical
 process); PROC (Process)

(starting material; in production of porous structure containing
 functional compound fine particles dispersed in overall position)

L4 ANSWER 8 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2001:66867 HCAPLUS Full-text

DN 134:240034

TI Electrode performance of Pt-Cr-Ni alloy catalysts for
 oxygen electrode in polymer electrolyte fuel cell

AU Shim, Joongpyo; Lee, Hong-Ki

CS Environmental Energy Tech. Div., Lawrence Berkeley National Lab.,
 California, 94720, USA

SO Han'guk Chaelyo Hakhoechi (2000), 10(12), 831-837
 CODEN: HCHAEU; ISSN: 1225-0562

PB Materials Research Society of Korea

DT Journal

LA Korean

AB To improve the catalytic activity of platinum on polymer electrolyte
 fuel cell(PEFC), platinum was alloyed with cobalt and nickel at
 various temperature By XRD, it was observed the crystal structure of
 alloy catalysts were the ordered face centered cubic(f.c.c) due to
 the superlattice line at 33°. As heat-treatment temperature was
 increased, the particle size of alloys also were increased and the
 crystalline lattice parameters were decreased. According to the
 results from mass activity, specific activity and Tafel slope
 measured by cell performance test and cyclic voltammogram, the
 catalyst activities of alloys are higher than that pure platinum.

IT 64136-44-3

RL: DEV (Device component use); USES (Uses)

(electrode performance of Pt-Cr-Ni alloy catalysts for
 oxygen electrode in polymer electrolyte fuel cell)

RN 64136-44-3 HCAPLUS
 CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
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Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 56, 67, 72

ST conjugated polymer methanofullerene solar cell morphol; platinum
 chromium nickel alloy **catalyst** electrode

IT Crystal structure
 Fuel cell cathodes
 (electrode performance of Pt-Cr-Ni alloy **catalysts** for
 oxygen electrode in polymer electrolyte fuel cell)

IT Fuel cells
 (polymer electrolyte; electrode performance of Pt-Cr-Ni alloy
catalysts for oxygen electrode in polymer electrolyte
 fuel cell)

IT Platinum alloy, base
 RL: DEV (Device component use); USES (Uses)
 (electrode performance of Pt-Cr-Ni alloy **catalysts** for
 oxygen electrode in polymer electrolyte fuel cell)

IT 64136-44-3 77950-55-1, Nafion 115
 RL: DEV (Device component use); USES (Uses)
 (electrode performance of Pt-Cr-Ni alloy **catalysts** for
 oxygen electrode in polymer electrolyte fuel cell)

L4 ANSWER 9 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 1998:656008 HCAPLUS Full-text

DN 129:262813

OREF 129:53505a,53508a

TI electrochemical **catalysts**, electrochemical reaction device
 and electrochemical elements using the **catalysts**,
 phosphoric acid fuel cells and methanol fuel cells

IN Mitsuda, Noriaki; Yoshioka, Shoji; Urushibata, Hiroaki; Fukumoto,
 Hisatoshi; Maeda, Hideo

PA Mitsubishi Electric Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 19 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.

KIND

DATE

APPLICATION NO.

DATE

 PI JP 10270055 A 19981009 JP 1997-71962

199703
 25

PRAI JP 1997-71962 19970325

AB The electrochem. catalysts containing ≥ 2 different catalytic components of different rest potential connected by an ionic conductor and an electron conductor. The catalyst components may contain 2 Pt alloy catalysts containing different non-Pt metals selected from Ni, Cr, Co, and Fe; or contain Pt or Pt black and a Pt alloy containing Mo, Ru, Sn, Fe, and/or W. Electrochem. devices and electrochem. elements use the catalysts for their pos. electrodes. H3PO4 fuel cells and fuel cells supplied directly with MeOH as fuel use the catalysts for their cathodes or anodes.

IT 64136-44-3

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(catalysts containing ionic and electron conductors connecting different catalytic components for fuel cell electrodes)

RN 64136-44-3 HCAPLUS

CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

=====+=====

IC ICM H01M004-90

ICS B01J023-89; C25B011-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST electrochem catalyst platinum alloy compn structure; fuel cell electrode platinum alloy catalyst; phosphoric acid fuel cell electrode catalyst; electron conductor multicomponent catalyst connection; ionic conductor multicomponent catalyst connection; methanol fuel cell electrode catalyst

IT Carbon black, uses

RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(catalysts containing ion conductors and carbon black electron conductors connecting different catalytic components for fuel cell electrodes)

IT Catalysts

Electric conductors

Fuel cell electrodes

(catalysts containing ionic and electron conductors connecting different catalytic components for fuel cell electrodes)

IT 7664-38-2, Phosphoric acid, uses

RL: DEV (Device component use); USES (Uses)

(catalysts containing ion conductors and phosphoric acid ion conductors connecting different catalytic components for fuel cell electrodes)

IT 7440-06-4, Platinum, uses 11107-69-0 64136-44-3
91810-23-0

RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)

(catalysts containing ionic and electron conductors connecting different catalytic components for fuel cell electrodes)

IT 67-56-1, Methanol, miscellaneous

RL: MSC (Miscellaneous)

(catalysts containing ionic and electron conductors connecting different catalytic components for methanol anodes in fuel cells)

OSC.G 2 THERE ARE 2 CAPLUS RECORDS THAT CITE THIS RECORD (2 CITINGS)

L4 ANSWER 10 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 1997:55888 HCAPLUS Full-text

DN 126:77448

OREF 126:14937a,14940a

TI Platinum-aluminum alloy catalyst for fuel cells and its preparation

IN Freund, Andreas; Lehmann, Thomas; Starz, Karl-Anton; Heinz, Gerhard; Schwarz, Robert

PA Degussa AG, Germany

SO Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DT Patent

LA German

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 743092	A1	19961120	EP 1996-106596	19960426
EP 743092	B1	19990901		

PI EP 743092

A1

19961120

EP 1996-106596

199604

26

EP 743092

B1

19990901

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, NL, PT,

SE
DE 19517598 C1 19970102 DE 1995-19517598 199505
13
AT 183946 T 19990915 AT 1996-106596 199604
26
US 5767036 A 19980616 US 1996-646394 199605
08
JP 09017435 A 19970117 JP 1996-115061 199605
09
JP 2880450 B2 19990412
PRAI DE 1995-19517598 A 19950513
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
AB The catalyst is PtpAlqMr, where p:q atomic ratio is 85:15-60:40, (p +
q):r atomic ratio is 85:15-50:50, and M is ≥1 element selected from
Group VIB, VIIB, VIII, and IB elements. M is selected from Cr, Mo,
W, Mn, Fe, Co, Ni, Rh, and Au. The catalyst exists on a conductive C
support as a carbide having a structure of Pt3AlC0.5. The catalyst
is prepared from aqueous suspension of conductive C support and
aqueous solns. of alloy components.
IT 185390-47-0P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(catalyst for fuel cells and its preparation)
RN 185390-47-0 HCAPLUS
CN Platinum alloy, base, Pt 77,Cr 14,Ni 5.2,Al 3.6 (9CI) (CA INDEX
NAME)

Component	Component Percent	Component Registry Number
Pt	77	7440-06-4
Cr	14	7440-47-3
Ni	5.2	7440-02-0
Al	3.6	7429-90-5

IC ICM B01J023-42
ICS B01J023-89; H01M004-92
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 56, 67
ST platinum aluminum alloy catalyst fuel cell; chromium
platinum aluminum alloy catalyst; molybdenum platinum
aluminum alloy catalyst; tungsten platinum aluminum alloy
catalyst; manganese platinum aluminum alloy catalyst

; iron platinum aluminum alloy **catalyst**; cobalt platinum aluminum alloy **catalyst**; nickel platinum aluminum alloy **catalyst**; rhodium platinum aluminum alloy **catalyst**; gold platinum aluminum alloy **catalyst**

IT Fuel cell electrodes

(**catalytic**; aluminum-platinum alloy)

IT 56320-40-2P 185390-39-0P 185390-40-3P 185390-41-4P

185390-42-5P 185390-43-6P 185390-44-7P 185390-45-8P

185390-46-9P 185390-47-0P 185390-48-1P 185390-49-2P

185390-50-5P, Aluminum platinum carbide (AlPt3C0.5)

RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(**catalyst** for fuel cells and its preparation)

OSC.G 35 THERE ARE 35 CAPLUS RECORDS THAT CITE THIS RECORD (47 CITINGS)

L4 ANSWER 11 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 1997:1502 HCAPLUS Full-text

DN 126:163438

OREF 126:31487a,31490a

TI Changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation

AU Maoka, T.; Kitai, T.; Segawa, N.; Ueno, M.

CS Heavy Apparatus Engineering Lab., Toshiba Corp., Kawasaki, 210, Japan

SO Journal of Applied Electrochemistry (1996), 26(12), 1267-1272

CODEN: JAELEBJ; ISSN: 0021-891X

PB Chapman & Hall

DT Journal

LA English

AB Changes in the cathode **catalyst** structure and activity obtained from a small size phosphoric acid fuel cell (PAFC) operated for various times up to 1200 h, were examined. The platinum surface oxide reduction potential in cyclic voltammograms (CV) shifted in the pos. direction with cell operation. This may be one of the manifestations of the activity enhancement for the oxygen reduction reaction (ORR). It was assumed that this activity increase for the ORR was caused by an increase in the surface roughness, due to the dissoln. of the alloyed base metals. Changes in the platinum chemical state of the alloy surface, from PtO to Pt, and growth of the Pt (110) plane would also contribute to this effect.

IT 64136-44-3

RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)

(platinum alloy **catalyst** change to platinum with fuel

cell operation and platinum oxide reduction potential shifted in

pos.

direction with increase in oxygen reduction activity)
 RN 64136-44-3 HCAPLUS
 CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component Component
 Registry Number

=====+=====

Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 72-2 (Electrochemistry)
 Section cross-reference(s): 52, 67

ST cathode **catalyst** structure activity fuel cell; phosphoric acid fuel cell cathode **catalyst**; oxygen electroredn platinum crystallite

IT Fuel cell cathodes
 (changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)

IT Reduction **catalysts**
 (electrochem.; changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)

IT Crystallites
 (size of platinum: changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)

IT Platinum alloy
 RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
 (platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in

pos. direction with increase in oxygen reduction activity)

IT 7664-38-2, Phosphoric acid, uses
 RL: DEV (Device component use); USES (Uses)
 (changes in cathode **catalyst** structure and activity in phosphoric acid fuel cell operation)

IT 7440-06-4, Platinum, uses 60596-33-0 64136-44-3
 RL: CAT (Catalyst use); DEV (Device component use); PRP (Properties); USES (Uses)
 (platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in

pos. direction with increase in oxygen reduction activity)

IT 7782-44-7, Oxygen, properties
 RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
 (platinum alloy **catalyst** change to platinum with fuel cell operation and platinum oxide reduction potential shifted in

pos.

direction with increase in oxygen reduction activity)

OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L4 ANSWER 12 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 1989:602888 HCAPLUS Full-text

DN 111:202888

OREF 111:33580h,33581a

TI Fuel-cell-electrode platinum catalyst and its preparation with carbon supports and carbides

IN Tsurumi, Kazunori; Nakamura, Toshihide; Sato, Akira

PA Tanaka Kikinzoku Kogyo K. K., Japan

SO Eur. Pat. Appl., 10 pp.

CODEN: EPXXDW

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	EP 329626	A1	19890823	EP 1989-830062	19890217
	EP 329626	B1	19930512		
	R: DE, GB, IT				
	JP 01210035	A	19890823	JP 1988-36248	19880218
	US 4985386	A	19910115	US 1989-312684	19890217

PRAI JP 1988-36248 A 19880218

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A Pt catalyst, useful for fuel-cell electrodes, comprises C supports and the carbides of Pt and ≥ 1 metal selected from Ni, Co, Cr, and Fe, and, if necessary, of Mn, supported on the C supports. The catalyst possesses superior catalyst performance because the catalyst metals are firmly fixed to the C supports by carburizing. The process for preparing the platinum catalyst includes alloying the metals by employing their organic acid amine salts. This alloying requires a lower temperature than that in a conventional process so that the movement of the metals which leads to agglomeration thereof can be advantageously prevented.

IT 123553-84-4

RL: CAT (Catalyst use); USES (Uses)
(catalysts from carbon and)

RN 123553-84-4 HCAPLUS
 CN Platinum alloy, base, Pt 78,Ni 12,Cr 10 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
Pt	78	7440-06-4
Ni	12	7440-02-0
Cr	10	7440-47-3

IC ICM B01J027-22
 ICS B01J023-89; H01M004-92

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
 Section cross-reference(s): 52

ST platinum catalyst carbon support; fuel cell electrode
 platinum catalyst

IT Catalysts and Catalysis
 (from metal carbides and carbon, preparation of)

IT Electrodes
 (fuel-cell, catalytic, metal carbide-carbon catalysts for)

IT 11130-49-7, Chromium carbide 12624-23-6, Platinum carbide 12640-64-1, Iron carbide 12710-36-0, Nickel carbide 12777-96-7, Manganese carbide 37256-04-5, Nickel 50, platinum 50(atomic) 37274-26-3, Iron 50, platinum 50(atomic) 39305-53-8, Cobalt 50, platinum 50(atomic) 51177-04-9, Cobalt carbide 77506-59-3, Chromium 50, platinum 50(atomic) 123553-82-2 123553-83-3 123553-84-4 123553-85-5
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts from carbon and)

IT 7440-44-0, Carbon, uses and miscellaneous
 RL: CAT (Catalyst use); USES (Uses)
 (catalysts from metal carbides and)

IT 7772-98-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductant, in platinum-containing catalyst preparation)

IT 7681-57-4, Sodium metabisulfite
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reductant, in platinum-containing catalysts preparation)

OSC.G 11 THERE ARE 11 CAPLUS RECORDS THAT CITE THIS RECORD (11 CITINGS)

L4 ANSWER 13 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 1989:561421 HCAPLUS Full-text
 DN 111:161421
 OREF 111:26800a

TI Process for alloying metals on supports for catalysts
 IN Tsurumi, Kazunori; Nakamura, Toshihide; Sato, Akira
 PA Tanaka Kikinzoku Kogyo K. K., Japan
 SO Eur. Pat. Appl., 6 pp.
 CODEN: EPXXDW
 DT Patent
 LA English
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	
PI	EP 330627	A1	19890830	EP 1989-830063	198902 17
	EP 330627	B1	19911106		
	R: DE, GB, IT				
	JP 01210037	A	19890823	JP 1988-36250	198802 18
	JP 2556874	B2	19961127		
	US 4954474	A	19900904	US 1989-312671	198902 17

PRAI JP 1988-36250 A 19880218

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A process for alloying metals on catalyst inorg. supports comprises applying the solution of an organic acid amine salt of a 2nd metal onto the inorg. supports already supporting a 1st metal; reducing the salt to the corresponding metal; and alloying the metals by heating. The alloying of the metals can be performed at a relatively low temperature, therefore, a highly active binary or ternary catalyst having a large surface area can be obtained.

IT 64136-44-3P

RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of, on catalyst support)

RN 64136-44-3 HCAPLUS

CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component Component
 Registry Number

=====+=====

Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

IC ICM B01J023-89

ICS B01J023-64; B01J037-00; H01M004-92

CC 67-1 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
 ST alloying on catalyst support
 IT Carbon black, uses and miscellaneous
 RL: USES (Uses)
 (alloying on catalyst support of)
 IT Catalysts and Catalysis
 (alloying on supports in preparation of)
 IT 7439-89-6, Iron, reactions 7440-02-0, Nickel, reactions
 7440-06-4, Platinum, reactions 7440-47-3, Chromium, reactions
 7440-48-4, Cobalt, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alloying of, on catalyst support)
 IT 7440-44-0, Carbon, uses and miscellaneous
 RL: USES (Uses)
 (alloying on catalyst support of)
 IT 11134-15-9P 12623-52-8P 12623-53-9P 60596-33-0P
 64136-44-3P 91033-96-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of, on catalyst support)
 OSC.G 3 THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)

L4 ANSWER 14 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
 AN 1982:459398 HCAPLUS Full-text
 DN 97:59398
 OREF 97:9933a,9936a
 TI Catalytically active metal alloy
 IN Barnabe, Jean Louis
 PA Regie Nationale des Usines Renault, Fr.
 SO Ger. Offen., 16 pp.
 CODEN: GWXXBX
 DT Patent
 LA German
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
PI DE 3026777	A1	19820211	DE 1980-3026777	198007 15
DE 3026777	C2	19830728		
PRAI DE 1980-3026777		19800715		
AB Alloys for exhaust gas catalyst contains Fe 40-80, Cr 0-40, Ni 0-40, C 0.02-0.1, ≥ 1 of Pt-group metals 0.05-2, preferably Pt 0.05-0.2, Ru 0.1-0.2, Rh 0.02-0.1, and Pd 0.05-0.2 %, and Ce, Cu, Mo, Ti, La, Ca, Y, Al, W, and Mn as activators or stabilizers. The alloys are melted				

in air or vacuum, quenched from .apprx.1150°, crushed into small pieces, followed by repeated quenching from 1050-1150° and tempering at 400-800° in 30 min-10 h to sensitize to intergranular corrosion, pickling in HCl-HNO₃ solution, then in aqueous 20% HCl, 2 h in 5-30 % oxalic acid at 60-90; and then oxidation at .apprx.350°. The intergranular corrosion can also be effected by anodic oxidation in 1% acid solution, the alloy being the anode, at .apprx.3 V and <30 min. Thus, an Fe alloy [82512-83-2] containing Cr 25, Ni 20, Pt 0.2, Ru 0.15, Rh 0.05, and C 0.3% was rolled to 0.05 mm, quenched from 1050°, tempered 8 h at 600°, etched 30 min in concentrated HNO₃ containing 10% HCl, then 2 min in 20% HCl, 2 h in 20% oxalic acid at 80° to form Fe and Ni oxalates, oxidized at 350° to form powdered Fe and Ni oxides, and tested in combustion gases containing CO 1.5, O 0.8% propylene or propane 400 and N oxide 2000 ppm. At the test temperature of 300-500° the efficiency of the catalyst was 90% for CO, 95 for C₃H₆, and 95 for N oxide, and, after aging 5 h at 700°, the resp. efficiency values were 53, 63, and 68, i.e., still acceptable.

IT 82512-83-2

RL: CAT (Catalyst use); USES (Uses)
(catalysts, for automobile exhaust converters)

RN 82512-83-2 HCAPLUS

CN Iron alloy, base, Fe 54,Cr 25,Ni 20,C 0.3,Pt 0.2,Ru 0.2 (9CI) (CA INDEX NAME)

Component	Component Percent	Component Registry Number
=====+=====+=====		
Fe	54	7439-89-6
Cr	25	7440-47-3
Ni	20	7440-02-0
C	0.3	7440-44-0
Pt	0.2	7440-06-4
Ru	0.2	7440-18-8

IC C22C038-00; B01J023-89

CC 55-3 (Ferrous Metals and Alloys)
Section cross-reference(s): 59, 67

ST catalyst converter iron chromium nickel; exhaust
automobile catalyst converter; platinum iron
catalyst converter

IT Air pollution
(by exhaust gases, alloys for catalysts for prevention
by)

IT Exhaust gases
(catalysts for)

IT Platinum-group metals

RL: USES (Uses)
(in iron alloy catalysts, for automobile exhaust converters)

IT 82512-83-2
RL: CAT (Catalyst use); USES (Uses)
(catalysts, for automobile exhaust converters)

IT 7440-16-6, uses and miscellaneous
RL: USES (Uses)
(in iron alloy catalysts, for automobile exhaust converters)

RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 15 OF 15 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1977:522044 HCAPLUS Full-text
DN 87:122044
OREF 87:19325a,19328a

TI Catalytic purification of ventilation discharges in the
production of medical preparation

AU Doronina, L. M.; Eshenbakh, L. F.; Ivanova, G. A.
CS Gos. Nauchno-Issled. Inst. Prom. Sanit. Ochist. Gazov, Dzerzhinsk,
USSR

SO Promyshlennaya i Sanitarnaya Ochistka Gazov (1977), (1), 14-15
CODEN: PSGADK; ISSN: 0131-5498

DT Journal
LA Russian

AB The catalytic conversion of iso-PrOH [67-63-0] (4 mg/L) and phenol
[108-95-2] (0.2 mg/L) by 5 catalysts (Al-Pt, CuO, Cu-Cr, Pt-Ni-Cr,
and Fe-Cr) was studied. A conversion of 98 - 100% was achieved with
Cu-Cr and Al-Pt catalysts at 270° for iso-PrOH and at 340° for
phenol. The Al-Pt catalyst, AP-56, was recommended for industrial
use as it is also suitable for oxidation of HCl commonly present in
effluent gases from pharmaceutical plants.

IT 64136-44-3
RL: CAT (Catalyst use); USES (Uses)
(oxidation catalysts, in removal of isopropanol and
phenol, from waste gases from pharmaceuticals manufacture)

RN 64136-44-3 HCAPLUS
CN Chromium alloy, nonbase, Cr,Ni,Pt (9CI) (CA INDEX NAME)

Component	Component Registry Number
Cr	7440-47-3
Ni	7440-02-0
Pt	7440-06-4

CC 59-2 (Air Pollution and Industrial Hygiene)
 Section cross-reference(s): 63, 67

ST waste gas treatment pharmaceutical manuf; isopropanol removal waste
 gas; phenol removal waste gas; oxidn **catalyst** waste gas
 treatment

IT Oxidation **catalysts**
 (in removal of isopropanol and phenol from waste gases, from
 pharmaceuticals manufacture)

IT Waste gases
 (removal of isopropanol and phenol from, oxidation **catalysts**
 in)

IT 1317-38-0, uses and miscellaneous 11099-27-7 11122-73-9
 37334-74-0 ~~64136-44-3~~

RL: CAT (Catalyst use); USES (Uses)
 (oxidation **catalysts**, in removal of isopropanol and
 phenol, from waste gases from pharmaceuticals manufacture)

IT 67-63-0, uses and miscellaneous 108-95-2, uses and miscellaneous

RL: REM (Removal or disposal); PROC (Process)
 (removal of, from waste gases, from pharmaceuticals manufacture,
 oxidation **catalysts** in)

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